

**WHAT IS CLAIMED IS:**

1. An expansion valve, in which a valve plug is driven by means of a temperature sensing unit which operates in accordance with the temperature and pressure of a low-pressure refrigerant delivered from an evaporator and adjusts the flow rate of refrigerant flowing into the evaporator, comprising:
  - constraint means for applying a force of constraint to the valve plug or an operating rod for opening and closing the valve plug, the constraint means being attached to the valve plug or the operating rod.
2. An expansion valve comprising:
  - a valve body having an orifice internally connecting a high-pressure passage through which a refrigerant flows in and a low-pressure passage through which the refrigerant flows out;
  - a valve plug for adjusting the flow rate of the refrigerant flowing in the orifice;
  - an operating rod for opening and closing the valve plug;
  - a temperature sensing drive unit for driving the operating rod; and
  - constraint means for constraining the valve plug or the operating rod, the constraint means being located on the upper-stream side of the high-pressure passage with respect to the orifice.
3. The expansion valve according to claim 1 or 2, wherein the constraint means is attached to the valve body.
4. The expansion valve according to claim 1 or 2, wherein the constraint means applies a force of constraint to the valve plug or the operating rod by means of elasticity.
5. The expansion valve according to claim 1 or 2, wherein the valve plug is spherical, and the constraint means is a support ring supporting the valve plug or the operating rod.
6. The expansion valve according to claim 5, wherein the

support ring is formed of a circular annular portion capable of elastic deformation and vibration-proof springs, the springs supporting the valve plug or the operating rod.

7. The expansion valve according to claim 5, wherein the  
5 support ring is formed of upper and lower circular annular portions and vibration-proof plate springs cut out of the annular portions.

8. The expansion valve according to claim 5, wherein the  
10 support ring is formed of a circular annular portion and vibration-proof plate springs arranged on one side of the annular portion.

9. The expansion valve according to claim 6, wherein  
each said vibration-proof spring is formed of a curved plate and supports the valve plug or the operating rod on a side face  
15 thereof.

10. The expansion valve according to claim 7, wherein  
each said vibration-proof spring is formed of a curved plate and supports the valve plug or the operating rod on a side face thereof.

20 11. The expansion valve according to claim 8, wherein  
each said vibration-proof spring is formed of a curved plate and supports the valve plug or the operating rod on a side face thereof.

12. The expansion valve according to claim 7, wherein  
25 each said vibration-proof spring is formed having a portion to be in pointed contact with the operating rod.

13. The expansion valve according to claim 8, wherein  
each said vibration-proof spring is formed having a portion to be in pointed contact with the operating rod.

30 14. The expansion valve according to claim 12, wherein  
the portion to be in pointed contact with the operating rod is hemispherical.

15. The expansion valve according to claim 12, wherein  
the portion to be in pointed contact with the operating rod has

a cylindrical outer peripheral surface.

16. The expansion valve according to claim 12, wherein the portion to be in pointed contact with the operating rod is in the form of a ridge.

5        17. The expansion valve according to claim 13, wherein the portion to be in pointed contact with the operating rod is hemispherical.

10        18. The expansion valve according to claim 13, wherein the portion to be in pointed contact with the operating rod has a cylindrical outer peripheral surface.

19. The expansion valve according to claim 13, wherein the portion to be in pointed contact with the operating rod is in the form of a ridge.